

Amendments to the Specification:

Please replace the two abstracts of the disclosure with the following abstract:

A plasma reactor (10) is provided. The plasma reactor (10) includes a reaction chamber (12) formed by a wall (13). Proximate to the first end of the reaction chamber, the plasma reactor includes a feed gas inlet (14) for creating a reverse vortex gas flow (16) in the reaction chamber. The plasma reactor (10) also includes an anode and a cathode connected to a power source for generation of an electric arc for plasma generation in said reaction chamber. The plasma reactor (10) may optionally include a movable electrode adapted for movement from a first, ignition position to a second, operational position in the reaction chamber. Also provided is a method of converting light hydrocarbons to hydrogen-rich gas, using the plasma reactor of the invention.

Please replace the second unnumbered paragraph on page 13 with the following paragraph:

Circular ring electrode 60 is mounted, via supporting wires 62 on a movable 10 mount 68 for substantially vertical movement in reaction chamber 12. Movable mount 68 is actuatable from outside reactor 10 to permit adjustment of the distance between circular ring electrode 60 and second electrode 70. This arrangement permits circular ring electrode 60 to be positioned a first, minimum distance 69 from second electrode 70 for ignition of the sliding arc. Once the sliding arc is ignited, circular 15 ring electrode 60 is moved vertically downwardly using movable mount 68 to position circular ring electrode 60 at a second, greater distance from second electrode 70, as shown in Fig. 7. In this manner, a short distance between circular ring electrode 60 and second electrode 70 can be provided for ignition, and a longer distance between circular ring electrode 60 and second electrode 70 can be provided for operation of 20 reactor 10. The ability to adjust the distance between the electrodes also allows the optimization of the sliding arc plasma generation in ~~[[t]]the~~ reaction chamber 12 by selection of the optimal distance between the electrodes for reactor operation.